

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US2004/040844

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N9/10 C12N15/54 C07H5/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, EMBASE, WPI Data, Sequence Search, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BOEGGEMAN ELIZABETH ET AL: "Mutation Met344His in bovine beta1,4-galactosyltransferase-1 broadens its primary metal ion specificity." GLYCOBIOLOGY, vol. 13, no. 11, November 2003 (2003-11), page 869, XP002323109 & 8TH ANNUAL CONFERENCE OF THE SOCIETY FOR GLYCOBIOLOGY; SAN DIEGO, CALIFORNIA, USA; DECEMBER 03-06, 2003 ISSN: 0959-6658 abstract	1-4,7, 52-54
Y	----- -/--	5,6, 22-42, 61-69

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
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- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

4 April 2005

Date of mailing of the international search report

21/04/2005

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>RAMAKRISHNAN BOOPATHY ET AL:  "alpha-Lactalbumin (LA) stimulates milk  beta-1,4-galactosyltransferase I  (beta4Gal-T1) to transfer glucose from  UDP-glucose to N-acetylglucosamine.  Crystal structure of beta4Gal-T1cndotLA  complex with UDP-Glc"  JOURNAL OF BIOLOGICAL CHEMISTRY,  vol. 276, no. 40,  5 October 2001 (2001-10-05), pages  37665-37671, XP002323110  ISSN: 0021-9258  the whole document</p>	5,6,26, 27,33, 34,40,41
Y	<p>RAMAKRISHNAN BOOPATHY ET AL:  "Structure-based design of  beta1,4-galactosyltransferase I  (beta4Gal-T1) with equally efficient  N-acetylgalactosaminyltransferase  activity. Point mutation broadens  beta4Gal-T1 donor specificity"  JOURNAL OF BIOLOGICAL CHEMISTRY,  vol. 277, no. 23,  7 June 2002 (2002-06-07), pages  20833-20839, XP002323111  ISSN: 0021-9258  the whole document</p>	22-42, 61-69
P,Y	<p>WO 2004/063344 A (NATIONAL INSTITUTES OF  HEALTH; QASBA, PRADMAN; RAMAKRISHNAN,  BOOPATHY) 29 July 2004 (2004-07-29)  the whole document</p>	8-51, 55-95
P,X	<p>RAMAKRISHNAN BOOPATHY ET AL: "Effect of  the Met344His mutation on the  conformational dynamics of bovine  beta-1,4-galactosyltransferase: crystal  structure of the Met344His mutant in  complex with chitobiose."  BIOCHEMISTRY. 5 OCT 2004,  vol. 43, no. 39,  5 October 2004 (2004-10-05), pages  12513-12522, XP002323112  ISSN: 0006-2960  the whole document</p>	1-4,7, 52-54
P,Y	<p>the whole document</p>	8-51, 55-95

INTERNATIONAL SEARCH REPORT  
Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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WO 2004063344 A 29-07-2004 WO 2004063344 A2 29-07-2004